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ABSTRACT

This position paper argues that education should be planned, designed, operationalized, and continuously modified to serve effectively the defined human and educational needs of a rapidly changing world. It focuses on emerging contemporary societal changes impacting learning theory, curriculum, and teaching methodology; and it outlines the implications of these emerging changes for future educational programs and facilities. A sampling of social trends, or "external" data, are described in flow charts as are trends in current learning theory, curriculum, and facility design and planning. The charts are arbitrarily classified into five major areas of concern: (A) The Real and Changing World (Relevance); (B) Economic Accountability (Shared Responsibility); (C) Uniqueness and Pluralism; (D) Segregation and Integration; and (E) Life-Long Learning and Leisure Time. Each area of concern is outlined in two pages. Societal Changes (Level One Trends) and learning theory changes (Level Two Trends) are outlined on the first page and changes in curriculum (Level Three Trends) and educational facilities (Level Four Trends) appear on the second page. The purpose of this approach is to focus attention on the importance of "reading" and understanding external data and then relating that data to appropriate program and facilities solutions. The concluding section (Level Four Trends) of each of the charts suggests innovative design ideas to challenge those who are developing plans for future educational facilities. (Author/MLF)

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PLANNING FOR EDUCATIONAL CHANGE

A Process Model for Designing Future Forms of Educational Facilities

RESEARCH REPORT NUMBER FIVE

OF

PROJECT SIMU SCHOOL: SANTA CLARA COUNTY COMPONENT

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CONTENTS

FOREWORD v

INTRODUCTION 1

PART I - AN HISTORICAL OVERVIEW 2

PART II - THE FLOW CHART AND KEYS (Definitions) 5

A. THE REAL AND CHANGING WORLD (RELEVANCE) 6

B. ECONOMIC ACCOUNTABILITY (SHARED RESPONSIBILITY) 8

C. UNIQUENESS AND PLURALISM 10

D. SEGREGATION AND INTEGRATION 12

E. LIFE-LONG LEARNING AND LEISURE TIME 14

KEY FOR FLOW CHARTS A-E 16

Third Level Key - Curriculum and Methodology 16

Fourth Level Key - Facility Design and Planning Implications 18

PART III - A CONCLUSION AND SUMMARY 22

REFERENCES 23

FOREWORD

Project Simu School has undertaken the task of providing, through development and testing in local school districts, planning tools which can be of assistance to educational planners. Techniques under test at the present time are addressed to the whole of educational planning--with emphasis on changes in the community and their effect on the school system.

Recognizing the broad effects of social change on the school system, Project Simu School has published background position papers which provide some guidelines for consideration by those who engage in planning. The present paper establishes relationships between societal pressures, educational theory, modifications of school curricula, and resultant changes in educational facilities which can, and should, be shaped by today's new forms of learning technology. The concluding section (Level IV) of each of the tables suggests innovative design ideas to challenge those who develop plans for educational facilities in the future.

Principal authors, Donald J. Leu and G. W. Ford, Dean and Associate Dean of the School of Education, San Jose State University, respectively, prepared the original manuscript. Collaboration with Richard Cornish, Technical Writer for Project Simu School, has produced this document which we hope will provide assistance to planners as they develop conceptual descriptions of school facilities.

Lester W. Hunt, Director
Project Simu School: Santa Clara County Component

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INTRODUCTION

The thesis of this position paper is that education (or schooling) should be planned, designed, operationalized and continuously modified to effectively serve the defined human and educational needs of our rapidly changing world.

Within this thesis are a number of basic planning assumptions:

1. Our changing socio-economic-political-technological-legal world has direct implications for learning theory, curriculum planning and resultant educational facilities.

2. Educational planners must use new and different planning data, both "internal" and "external," to attain an accurate and useful reading of societal change. Moreover, the process of "reading" change must be a continuous one.

3. The speed of societal change will continue to accelerate during the next several decades and with that acceleration, the data base (Management Information System--"M.I.S.") with which educators must plan will continue to change.

4. Schools and educational facilities are only one relatively small part (or subsystem) of an individual's total educational experience and activities. Schooling is, therefore, a "subsystem of education."

5. Formal "schooling" is becoming a decreasing portion of each person's total "education."

6. There is no single educational plan that should be adopted or adapted by all school systems or local schools.

7. Most significant educational changes are initiated or "invented" outside of the educational system; however, those changes arbitrarily imposed by an outside individual or agency on the teaching staff tend to be dysfunctional and tend to disappear within a few years. Instead, operational changes in curriculum and program must be internalized from within--they must be a cooperative product of all who are affected: teachers, students, citizens, administrators, and technical planners.

8. Change is a continuous process with many initial educational changes requiring continuous modifications and local adaptations to make them workable.

The purpose of this paper is to focus on emerging contemporary societal changes impacting learning theory, curriculum and teaching methodology, and to outline the implications of these emerging changes for future educational programs and facilities. The table and supporting keys which appear in Part II of this paper are designed to be used as planning tools in viewing current social trends and their implications for public education.

PART I - AN HISTORICAL OVERVIEW

Schools are almost as old as civilization. A cave and the surrounding terrain probably served as the first one-room schoolhouse, where father taught son the techniques of survival and food procurement, and mother taught daughter the homemaking techniques of that bygone era. The curriculum of the day featured "basic education," and the schoolhouse-cave was selected and "modernized" to serve the curriculum.

Like early man's schoolhouse-cave, the rural one-room school of nineteenth century America was simple and basic. And, like its prehistoric predecessor, it was community-centered and functionally related to the curriculum of the day. The sod hut and log cabin "schools" of early America were designed, "raised" and closely controlled by the parents of the immediate community and, frequently, they served the varied purposes of teacher's home, schoolhouse and community center. While often dark, dirty and unhealthy (compared to modern standards), these "little red schoolhouses" satisfied local educational needs and were consistent with the goals, values and priorities of their pioneer clients. They provided shelter from the elements, a wood burning stove for warmth, and fixed benches appropriate for the "three R's drill and content" course of study.

In these early days, educational planning consisted of short-term school building solutions to immediate and critical problems. New families moved into the area, the schoolhouse became overcrowded, a wall was knocked out and a simple addition put on. Frontier school boards reacted to, rather than planned for, change; but in a young nation where growth was sporadic and social change slow, this method of "educational planning" was more than adequate. In fact, because of the amount of direct citizen involvement in decision making, these pioneer school systems were more responsive to the real everyday needs of their clients than were many of the later larger urban systems. Relevance and rapid social change were not major issues.

As America experienced its first large-scale move from a rural to an urban society, its schools began to grow larger and more complex. For the first time, considerations of sheer numbers and concentration of population began to outweigh basic curricular concerns. For example, Boston's Quincy Grammar School (constructed in 1848) served as a prototype of future graded elementary schools. The building consisted of twelve classrooms, an assembly hall and a principal's office. The school was located on a site of less than one acre, was four stories tall, and included a basement, toilet rooms, and attic storage. The assembly hall, which was located on the fourth floor, was designed large enough to hold the entire student body of 660 students. Each of the remaining box-like floors was divided into four classrooms and a central corridor. Fifty-five students in fixed, individual seats were squeezed into each classroom. It is interesting to note that this school and hundreds of later adaptations are still in use today in many of our large cities.

In the decades that followed, increasing industrialization throughout much of the country made it possible for older students, who were needed

less and less on the family farm, to continue their education through adolescence. By 1874, the landmark Kalamazoo court decision had established the right of local school districts to operate high schools at public expense. Although the emergence of secondary education was a significant step in the development of American public education, the curriculum of the high schools remained, for the most part, unchanged from that of the lower grades. The secondary program usually meant "more of the same" added at each successive level, and, as a result, more rooms were added on to existing buildings to accommodate the new upper grades, but few program or design innovations occurred.

By the turn of the century, however, new curriculum and facility designs began to reflect the changing needs and demands of a growing and increasingly complex nation. A more sophisticated and urbanized citizenry began to expect and require more than just functional literacy from its schools, and soon school boards began establishing a variety of new programs. Wood, metal and machine shops, homemaking and sewing rooms, commercial, science, music and physical education facilities comprised the new "comprehensive" high school. Because the "bearing wall" construction of school buildings of this period made major interior changes exceedingly difficult, existing schools built separate structures to house their new curriculum. Little or no consideration was given to modifiable design--educators were attempting to meet the needs of an obviously changing society, but they paid little attention to the process of future planning and to the inevitability of major curriculum change.

In 1917, the federal government began encouraging and supporting both physical education and vocational training programs, and school systems throughout the country took advantage of this federal aid to build badly needed and better equipped schools. Many of these new facilities featured spaces for manual training with adequate natural lighting, libraries, basement level gyms, and spacious auditoriums that doubled as community meeting halls. Also, proper nutrition for school age children had, for the first time, become an important issue, and more and more school plant designs included cafeterias and lunchrooms.

America had emerged from the industrial revolution as the wealthiest, most affluent nation in the world. More than ever before, its citizens believed that theirs was a land of opportunity--a place where any man could shape his destiny and could achieve socio-economic mobility. In growing numbers, Americans strongly believed that at least part of the key to their success and security lay in education, and the schools built during this period reflected their belief. Columns and cupolas, parapet walls and high ceilings resulted in schools that looked more like churches or museums than schools. These were the physical symbols of a proud, rich and expansionist nation.

If lavish ornamentation symbolized the first thirty years of the century, a sober absence of frills and pretensions symbolized the next ten. The stock market crash of October, 1929, robbed the United States of much of its apparent wealth and all of its optimism. Now people became more interested in survival (feeding their families) than in shaping their destinies. The overriding societal change was an economic one, and its

impact on education could easily be seen in the schools constructed during the depression years. Instead of museums, the schools now resembled prisons--regular, severe boxes, stripped of all but the essentials and frequently built on donated, rather than properly selected, sites. The majority of public schools built during the 1930's were financed with federal money, and many were constructed by the Work Projects Administration, utilizing WPA labor. With the federal government taking such an active role in the financing and building of schools, community voices were seldom heard or sought when new facilities were planned. The days of unbridled prosperity were over for the moment, and American education, along with every other sector of society, drastically tightened its economic belt.

By 1946, the United States had (temporarily) won both its economic and military battles, and Americans had a renewed, if somewhat cautious, optimism. Growth and expansion were once again the major values in societal change. Overnight, new technological industries were born, new world markets were opened, and the national birthrate again soared.

Large cities met the explosive growth in population with massive, multi-story structures featuring "egg crate" classrooms along both sides of a central corridor. These buildings, like the cell blocks of the thirties, had a severe, institutional look and a rugged, enduring quality. Roof lines were flat, building lines were straight, and window area was abundant. Myriad, and sometimes grotesque, attempts to let large amounts of daylight into classrooms made effective use of emerging electronic and audio-visual teaching aids difficult. While building programs around the country were stepped up, urban districts were seldom able to catch up with, much less stay abreast of, growing student enrollments.

In what was fast becoming "suburban America," however, a new solution to the post-war population explosion was being tested and refined. Seen first in California, the "finger plan" provided the means with which to break down large massive units into smaller, decentralized ones to relieve congestion and noise and to bring outside light into the classroom without the glare and heat gain of the urban "glassblocks." Unlike the highly impacted cities, the suburban areas had a surplus of inexpensive land on which schools could expand outward instead of upward.

Perhaps the greatest advantage to the finger plan lay in its adaptability to change. Easily expandable to accommodate increases in enrollment and easily modifiable to house changing curriculum, these schools were the architectural expression of planners who, for the first time, were beginning to plan for, rather than react to, change. Later, with the development of "campus type" schools which featured clusters of classrooms or "little schools" scattered over a single site, educational planners and architects moved still closer to designing facilities that acknowledged both the symptoms and the process of change.

PART II - THE FLOW CHART AND KEYS (Definitions)

Because learning theory, curriculum and facilities have consistently followed, and not led, the patterns of the social systems surrounding our schools, the initial task of the educational planner is to study, understand, interpret, and translate current or emerging social trends. Historically, educational planning has been largely restricted to the use of "internal" school data. The existing "course of study," school buildings, school enrollments, and available school dollars provided the raw data for research, planning and decision making. However, in recent years, planners have been discovering that many of the more significant factors or variables impacting education must be classified as "external"--data and decisions located outside the formal educational system.

In the charts that follow, a sampling of social trends, or "external" data, are described as are trends in current learning theory, curriculum and facility design and planning. The chart is arbitrarily classified into five major areas of concern: (A) The Real and Changing World (Relevance); (B) Economic Accountability (Shared Responsibility); (C) Uniqueness and Pluralism; (D) Segregation and Integration; and (E) Life-Long Learning and Leisure Time. Each area of concern is outlined in two pages, the first page outlining selected societal changes (Level One Trends) and learning theory changes (Level Two Trends) and the second page outlining changes in curriculum (Level Three Trends) and educational facilities (Level Four Trends). The arrows which move across the two pages of each area of concern attempt to express the causal relationships between trends in society, learning theory, curriculum and facilities. The two keys that follow the chart provide more detailed descriptions of some of the curriculum and facility trends cited in the chart.

The purpose of this approach is to focus attention on the importance of "reading" and understanding external data and then relating that external data to appropriate program and facilities solutions. These charts are offered as a sampling, rather than a comprehensive picture, of the rapidly changing patterns of American society and resultant future forms of public education.

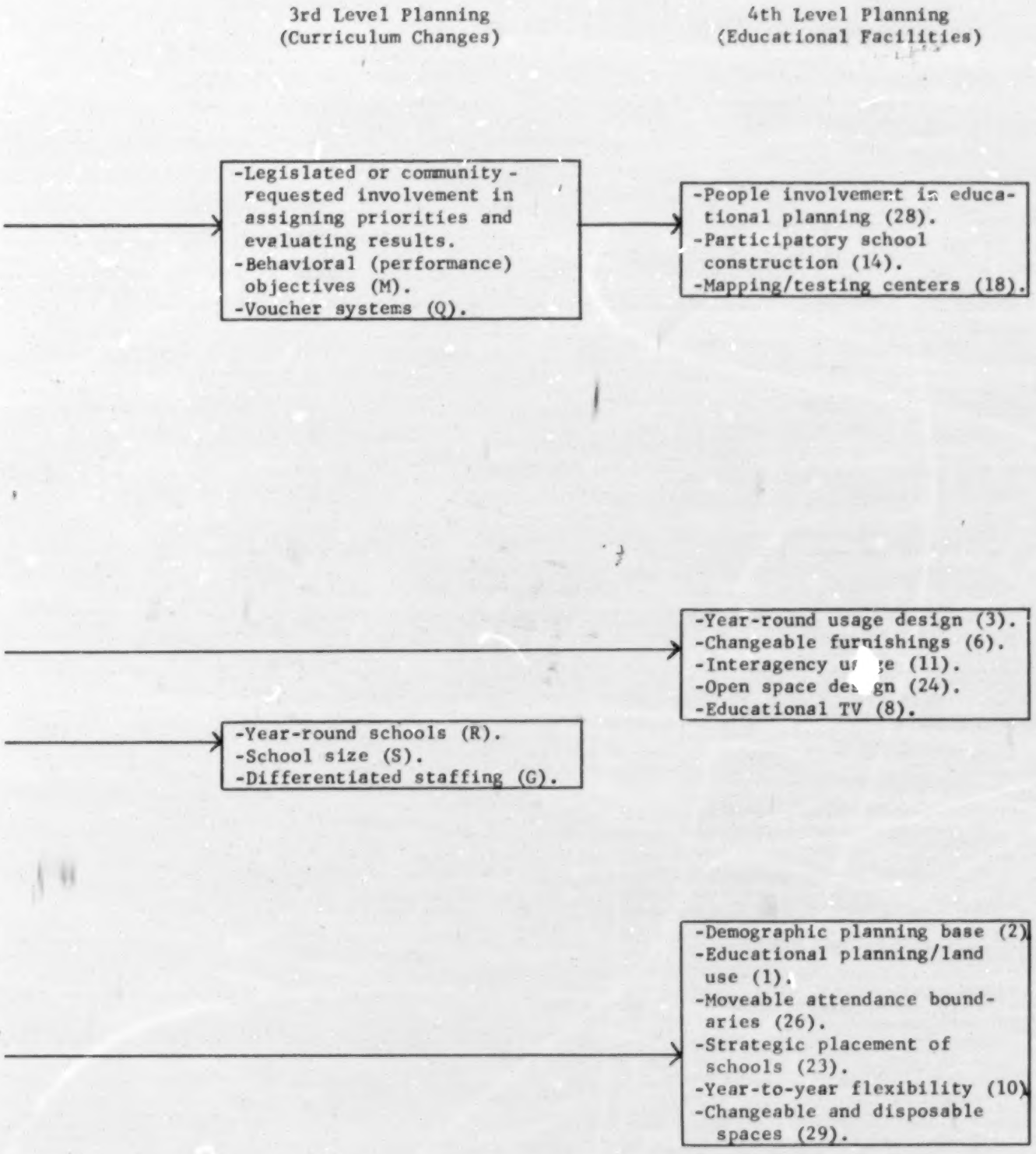
A. THE REAL AND CHANGING WORLD (RELEVANCE)

1st Level Planning (Societal Changes)	2nd Level Planning (Learning Theory)
-There is a growing awareness among youth for the need of relevance and social involvement in the "real and changing world."	-Learning is neither wholly an innate process of unfoldment, nor a result of external stimuli, but rather it includes simultaneous mutual interaction between the learner and his environment. -Students need opportunities to participate meaningfully in the "real world" and to relate those experiences to "relevant" programs of study. -The role of the school is changing from that of passive transmission of culture to active participation in the process of cultural changes in which key areas are: humanization of institutions, environmental and "people" conservation, etc. -Appropriate education can increase the scope and depth of interpersonal relationships and contribute to greater social harmony. -Schools must recognize and respond to increasing problems of mental health, crime, violence and related issues--drugs, alcohol, etc.
-As changing technology continues to eliminate some jobs and create others which require new skills, many of them technical and semi-professional, young people are finding it more and more difficult to succeed in the "real world." -Growing demands for a highly skilled labor force and a growing sophistication among young people will continue to raise the level of functional literacy.	-Increasing access to social-economic position through education has increased demands on public education. -Educators must take into account sweeping changes in the economy and resultant manpower needs when planning career programs.

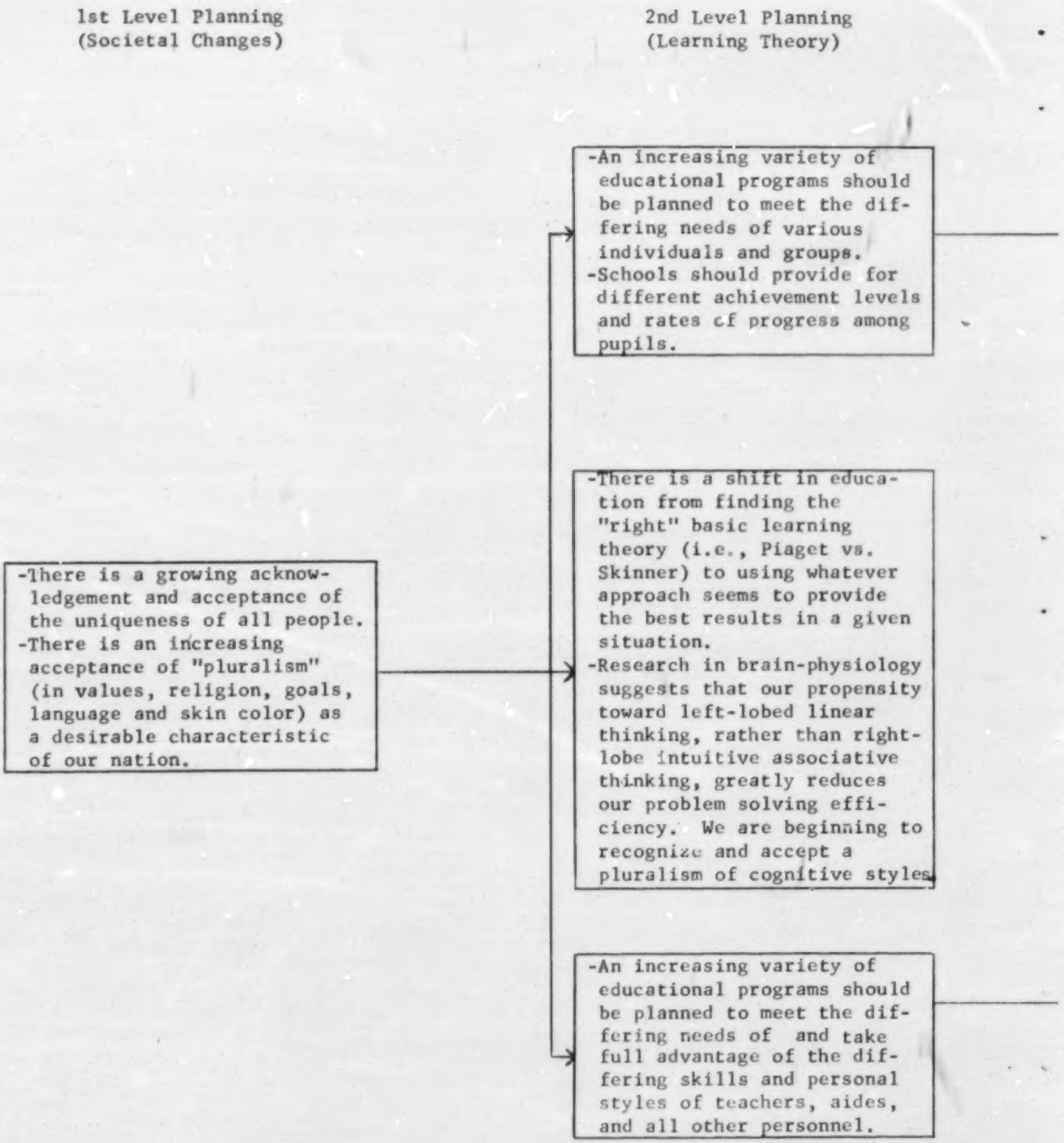
3rd Level Planning (Curriculum Changes)	4th Level Planning (Educational Facilities)
-A broadening of the definition of education must be made to include all institutions, groups, media, etc. Schools and schooling should be perceived as one partial subsystem of education. -Physical environmental factors such as sound, lighting, temperature, setting, interest-engaging forms, colors, and textures, all of which influence the learning process, should be controlled and controllable.	-Stimulating physical environment (5). -Changeable furnishings (6). -Educational shopping malls (13) -Blurring school and world boundaries (12)
-There must be a rediscovery and urban adaptation of the "community school" concept to metropolitan America with a great variety of differing and local community school solutions. -Cross-age teaching (L). -High schools must assist youth in gaining satisfaction from voluntary service in the community and throughout the state, nation and world. -Avant garde learning technologies (P).	-Educational TV (8). -Local knowledge information centers (9). -Interagency facility usage (11). -Participatory school construction (14). -Communication-encouraging spaces (16). -School as ecological model (17). -Public access research labs (19). -Off-campus educational spaces (15). -Blurring school and world boundaries (12).
-Well-prepared vocational and career counseling and up-to-date guidance should be readily available. -Opportunity schools (O). -Schools should engage in increased cooperative programs with business and industry to offer better preservice and inservice training.	-Off-campus educational spaces (15). -Off-campus skills centers (4). -Informal career counseling. -Blurring school and world boundaries (12).

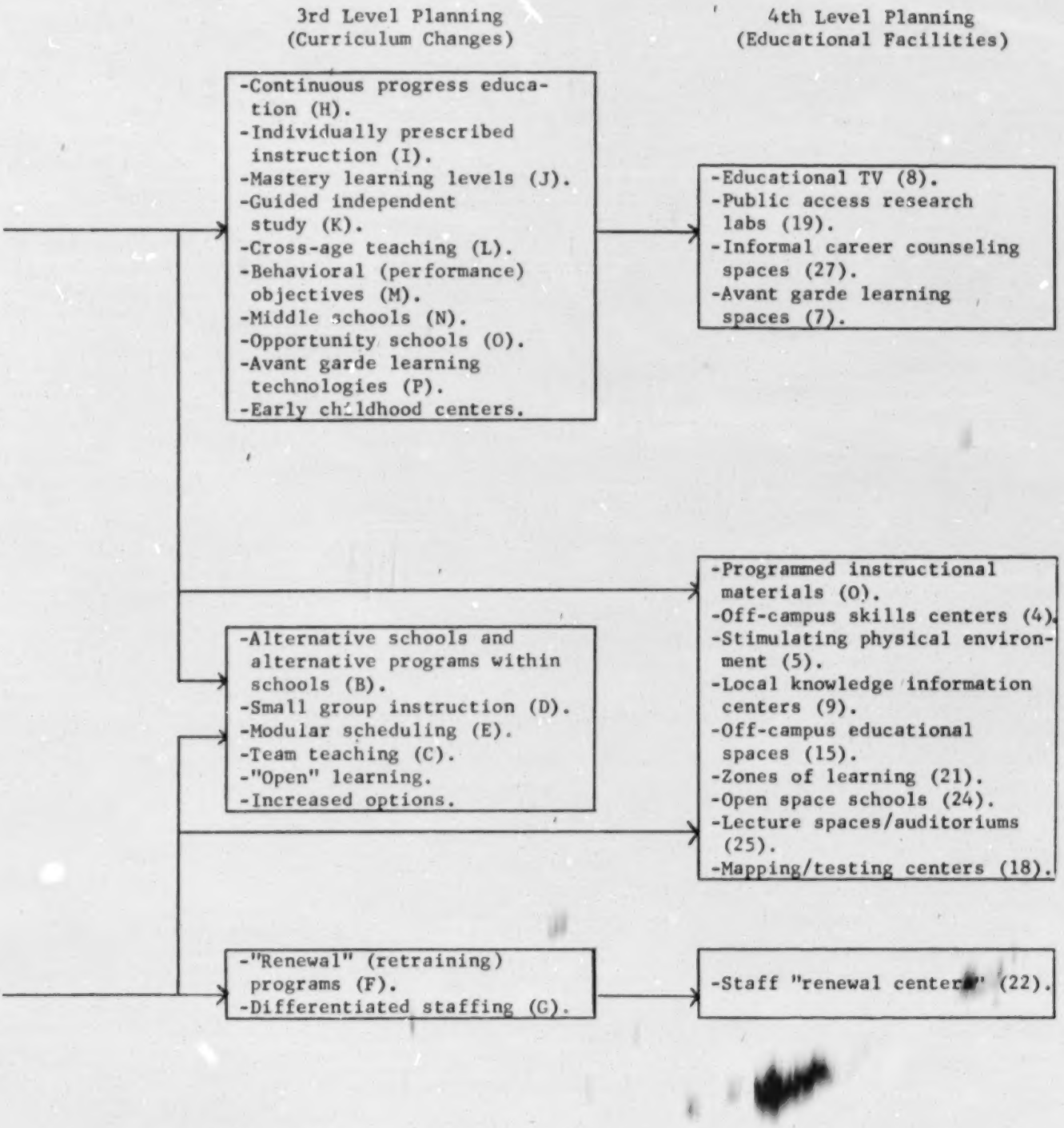
B. ECONOMIC ACCOUNTIABILITY (SHARED RESPONSIPILITY)

1st Level Planning (Societal Changes)	2nd Level Planning (Learning Theory)
-In a world of increasing diversity, social and personal needs must be analyzed and assigned priorities. Such assignment of priorities demands objective statements of cost, benefits and success criteria.	-Schools with stable or declining enrollments and with limited fiscal resources must carefully define their values-goals-priorities and basic philosophy. -Educators must develop new evaluating procedures (i.e., to include the affective domain). -There must be a shift in education from finding the "right" basic learning theory (i.e., Piaget vs. Skinner) to using whatever approach seems to provide the best results in a given situation for a specific individual (or teacher).
-In a society of rising taxes and growing inflation, government dollars must be carefully invested (priorities).	-Educators must find ways of achieving maximum return on tax dollars (economy must not be confused with cheapness resulting in high maintenance costs, early obsolescence or ommission of needed educational programs and spaces). -There must be a greater dependency on flexibility in all aspects of education to ensure wise spending of tax dollars.
-High mobility rate (approximately 20%) makes public services costly. -Suburban sprawl and development scatterization makes public services costly. -Declining birthrates and growth.	-Educators must find new ways to deal with the high mobility rate, urban sprawl and declining enrollments.

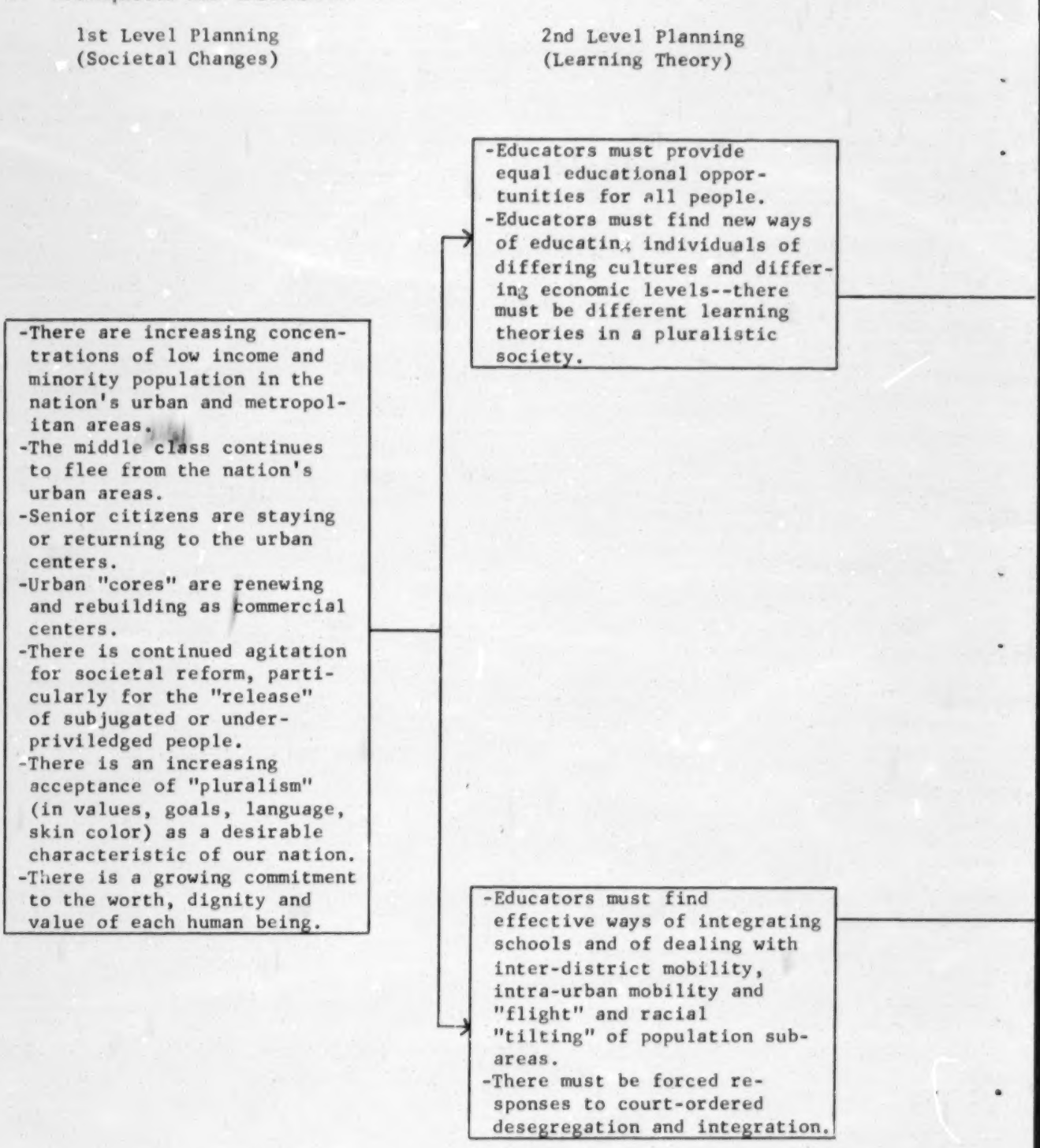

3rd Level Planning
(Curriculum Changes)
4th Level Planning
(Educational Facilities)
-Legislated or community-requested involvement in assigning priorities and evaluating results.
-Behavioral (performance) objectives (M).
-Voucher systems (Q).
-People involvement in educational planning (28).
-Participatory school construction (14).
-Mapping/testing centers (18).
-Year-round usage design (3).
-Changeable furnishings (6).
-Interagency usage (11).
-Open space design (24).
-Educational TV (8).
-Year-round schools (R).
-School size (S).
-Differentiated staffing (G).
-Demographic planning base (2).
-Educational planning/land use (1).
-Moveable attendance boundaries (26).
-Strategic placement of schools (23).
-Year-to-year flexibility (10).
-Changeable and disposable spaces (29).

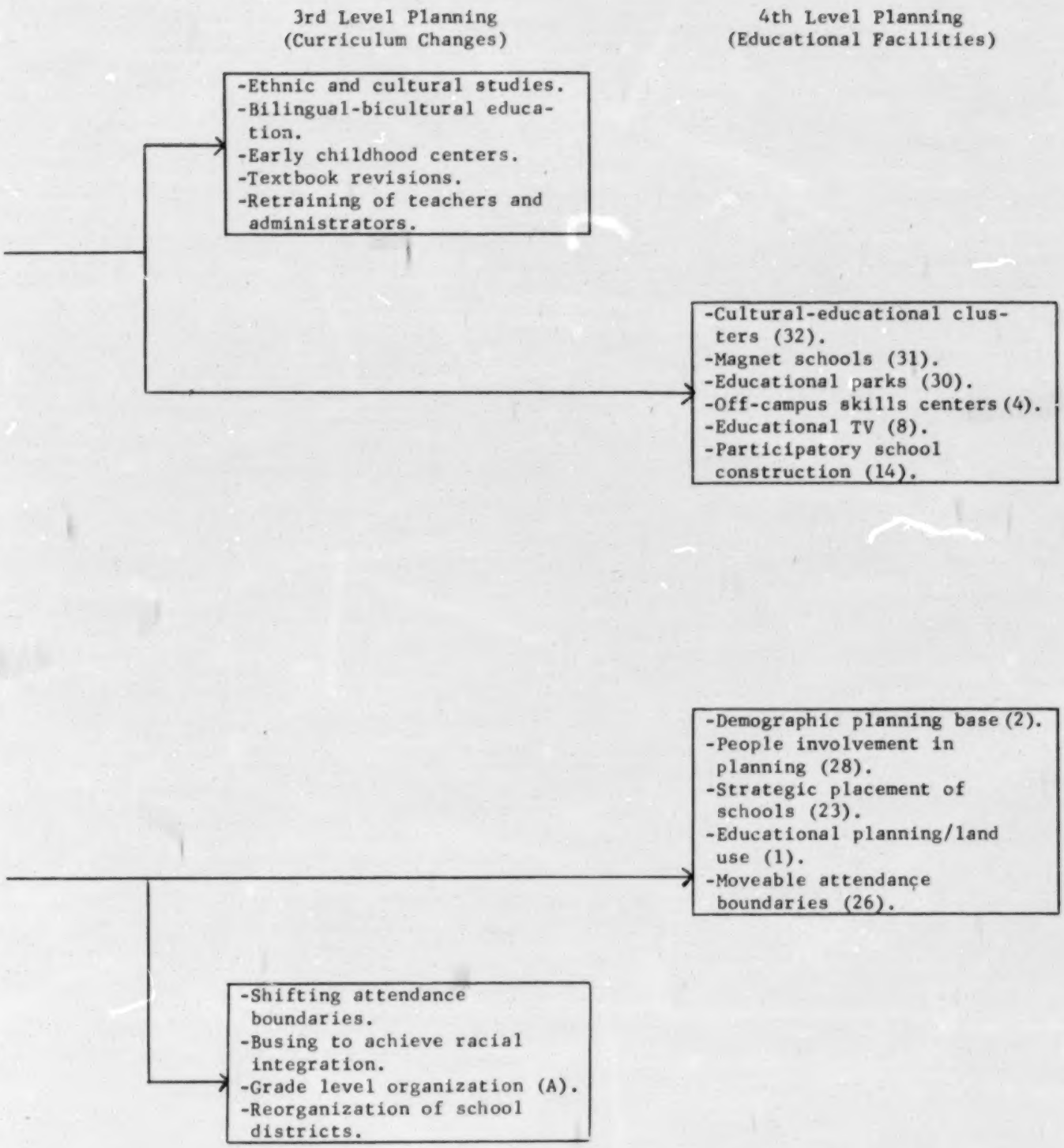
C. UNIQUENESS AND PLURALISM


1st Level Planning
(Societal Changes)
2nd Level Planning
(Learning Theory)
-There is a growing acknowledgement and acceptance of the uniqueness of all people.
-There is an increasing acceptance of "pluralism" (in values, religion, goals, language and skin color) as a desirable characteristic of our nation.
-An increasing variety of educational programs should be planned to meet the differing needs of various individuals and groups.
-Schools should provide for different achievement levels and rates of progress among pupils.
-There is a shift in education from finding the "right" basic learning theory (i.e., Piaget vs. Skinner) to using whatever approach seems to provide the best results in a given situation.
-Research in brain-physiology suggests that our propensity toward left-lobed linear thinking, rather than right-lobe intuitive associative thinking, greatly reduces our problem solving efficiency. We are beginning to recognize and accept a pluralism of cognitive styles.
-An increasing variety of educational programs should be planned to meet the differing needs of and take full advantage of the differing skills and personal styles of teachers, aides, and all other personnel.

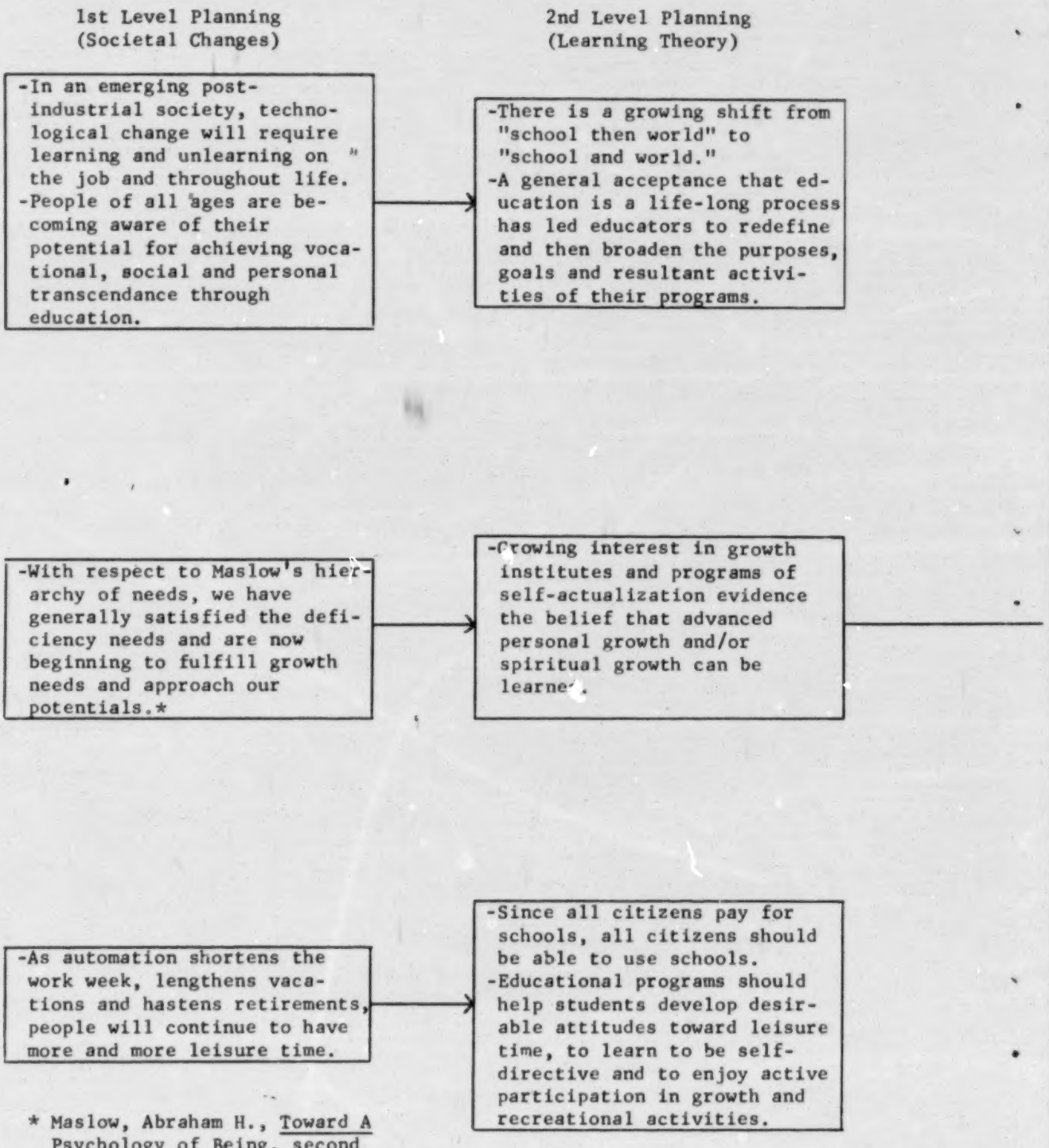

3rd Level Planning
(Curriculum Changes)
4th Level Planning
(Educational Facilities)
-Continuous progress education (H).
-Individually prescribed instruction (I).
-Mastery learning levels (J).
-Guided independent study (K).
-Cross-age teaching (L).
-Behavioral (performance) objectives (M).
-Middle schools (N).
-Opportunity schools (O).
-Avant garde learning technologies (P).
-Early childhood centers.
-Educational TV (8).
-Public access research labs (19).
-Informal career counseling spaces (27).
-Avant garde learning spaces (7).
-Programmed instructional materials (O).
-Off-campus skills centers (4).
-Stimulating physical environment (5).
-Local knowledge information centers (9).
-Off-campus educational spaces (15).
-Zones of learning (21).
-Open space schools (24).
-Lecture spaces/auditoriums (25).
-Mapping/testing centers (18).
-Alternative schools and alternative programs within schools (B).
-Small group instruction (D).
-Modular scheduling (E).
-Team teaching (C).
-"Open" learning.
-Increased options.
-"Renewal" (retraining) programs (F).
-Differentiated staffing (G).
-Staff "renewal centers" (22).

D. SEGREGATION AND INTEGRATION


1st Level Planning
(Societal Changes)
2nd Level Planning
(Learning Theory)
-There are increasing concentrations of low income and minority population in the nation's urban and metropolitan areas.
-The middle class continues to flee from the nation's urban areas.
-Senior citizens are staying or returning to the urban centers.
-Urban "cores" are renewing and rebuilding as commercial centers.
-There is continued agitation for societal reform, particularly for the "release" of subjugated or underpriviledged people.
-There is an increasing acceptance of "pluralism" (in values, goals, language, skin color) as a desirable characteristic of our nation.
-There is a growing commitment to the worth, dignity and value of each human being.
-Educators must provide equal educational opportunities for all people.
-Educators must find new ways of educating individuals of differing cultures and differing economic levels--there must be different learning theories in a pluralistic society.
-Educators must find effective ways of integrating schools and of dealing with inter-district mobility, intra-urban mobility and "flight" and racial "tilting" of population subareas.
-There must be forced responses to court-ordered desegregation and integration.


3rd Level Planning
(Curriculum Changes)
4th Level Planning
(Educational Facilities)
-Ethnic and cultural studies.
-Bilingual-bicultural education.
-Early childhood centers.
-Textbook revisions.
-Retraining of teachers and administrators.
-Cultural-educational clusters (32).
-Magnet schools (31).
-Educational parks (30).
-Off-campus skills centers (4).
-Educational TV (8).
-Participatory school construction (14).
-Demographic planning base (2).
-People involvement in planning (28).
-Strategic placement of schools (23).
-Educational planning/land use (1).
-Moveable attendance boundaries (26).
-Shifting attendance boundaries.
-Busing to achieve racial integration.
-Grade level organization (A).
-Reorganization of school districts.

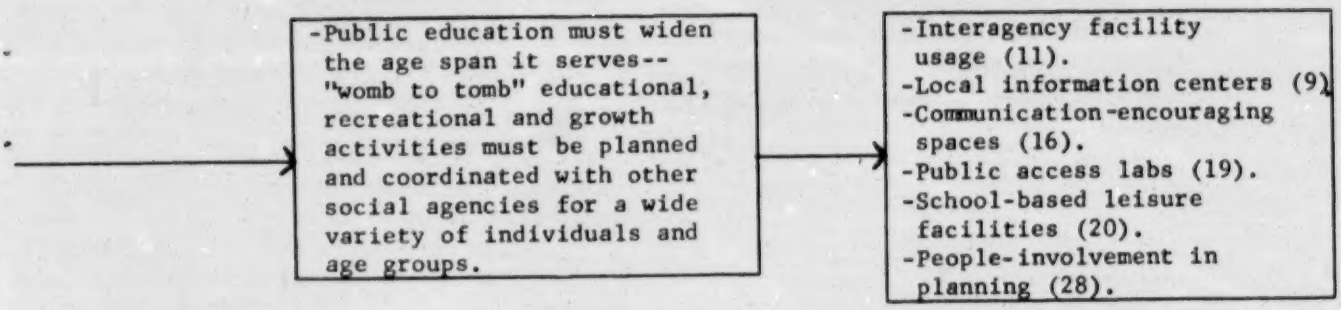
E. LIFE-LONG LEARNING AND LEISURE TIME


1st Level Planning
(Societal Changes)
2nd Level Planning
(Learning Theory)
-In an emerging post-industrial society, technological change will require learning and unlearning on the job and throughout life.
-People of all ages are becoming aware of their potential for achieving vocational, social and personal transcendance through education.
-There is a growing shift from "school then world" to "school and world."
-A general acceptance that education is a life-long process has led educators to redefine and then broaden the purposes, goals and resultant activities of their programs.
-With respect to Maslow's hierarchy of needs, we have generally satisfied the deficiency needs and are now beginning to fulfill growth needs and approach our potentials.*
-Growing interest in growth institutes and programs of self-actualization evidence the belief that advanced personal growth and/or spiritual growth can be learned.
-As automation shortens the work week, lengthens vacations and hastens retirements, people will continue to have more and more leisure time.
-Since all citizens pay for schools, all citizens should be able to use schools.
-Educational programs should help students develop desirable attitudes toward leisure time, to learn to be self-directive and to enjoy active participation in growth and recreational activities.

* Maslow, Abraham H., Toward A Psychology of Being, second edition. New York: Van Nostrand Reinhold, 1968.

3rd Level Planning
(Curriculum Changes)

4th Level Planning
(Educational Facilities)


-Public education must widen the age span it serves--"womb to tomb" educational, recreational and growth activities must be planned and coordinated with other social agencies for a wide variety of individuals and age groups.
-Interagency facility usage (11).
-Local information centers (9).
-Communication-encouraging spaces (16).
-Public access labs (19).
-School-based leisure facilities (20).
-People-involvement in planning (28).

KEY FOR FLOW CHARTS A-E

The following materials have been included to provide succinct definitions to a number of new and/or emerging concepts in American education. These samplings attempt to overview current and future changes in schooling and education.

Third Level Key - Curriculum and Methodology

A. Grade Level Organization. Isolating a smaller age range at a specific school site necessitates drawing students from a larger geographical area, thus broadening the connotation of a school's "neighborhood" and facilitating the creation of ethnically balanced attendance areas.

B. Alternative Schools. An extension of the concept of increasing curricular options and personalization to the whole school environment, alternative schools (within and outside of public schools) can provide staffing patterns, curricular emphasis and philisophical orientation which fulfill the unique needs of certain learners and their parents as well as teachers but which may not be politically suited for large-scale adoption. Curriculum ranges from "open" to the "three R's."

C. Team Teaching. Two or more professional staff members (ordinarily four or five) assume the responsibility for all or most of the learning activities for a group of students. The arrangement calls both for planning together and teaching together in the learning setting. Sometimes all are peers and the arrangement is referred to as cooperative teaching. Sometimes there is a leader and the rest of the team are peers. Sometimes there is a leader, several peer teachers and a teacher aide or aides.

D. Small Group Instruction. Organization of small groups of students within a class for such learning activities as exchanging ideas and information, serving as a committee to undertake a task for the larger class group or working together on skill development.

E. Modular Scheduling. Learning experiences are organized in time blocks of varying lengths depending on purposes and extent of the learning activity. Sometimes it entails combining two or more time units (modules) of the same length in order to provide the student with enough time to adequately complete his task.

F. "Renewal" (retraining) Programs. As public schools move toward taking the responsibility for teacher training and retraining, staff "renewal" programs will provide the opportunity for professional and personal growth through programs of staff interaction, curriculum development and exchange, policy planning involvement and workshops with key resource personnel. Emerging "Teacher Renewal Centers" located within a local school system are one form of renewal.

G. Differentiated Staffing. A broad range of personnel, including teachers, interns, technicians, members of other professions, parents, retirees and students themselves as teachers, is used to provide instruction. Such teams both plan and teach together. Within the professional teacher ranks there is differentiation of assignment depending on staff members' interests, talents and commitments.

H. Continuous Progress Education. An educational program that allows each learner the opportunity to progress in learning at his own speed in terms of his own learning style and ability. There is continual evaluation but no limitations on time for accomplishing learning tasks and no threats of failure or nonpromotion.

I. Individually Prescribed Instruction. A wide range of content, methodology and timetables for accomplishment is provided for each student based on his or her interests, needs, abilities and learning rate. (In less sophisticated versions, the only individualization is in terms of the timetables for mastery of content; all students are exposed to the same methodology and content.)

J. Mastery Learning Levels. If learners are afforded the kind of quality of instruction and the amount of time appropriate for their individual characteristics and needs, 90% (or any defined percentage) of them could achieve a stated mastery level (i.e., Grade A) of learning whatever is the educational objective.

K. Guided Independent Study. An individual learner's pursuit of a question, problem or interest--with guidance provided by a teacher as needed in planning, overcoming difficulties, evaluating and reporting.

L. Cross-Age Teaching. Grouping for instruction is based on characteristics other than age. Achievement and emotional development are common criteria. Others include interest, special talents, unique background and experience outside school. Cross-age teaching is often part of or leads to nongraded schools.

M. Behavioral (Performance) Objective. Expected outcomes of learning activities are stated in terms of observable behavior (performance) that indicates what the learner is able to do, under what conditions the learner is able to perform, and, when appropriate, the minimum level (standard) of acceptable achievement.

N. Middle Schools. Middle schools (frequently grades 6, 7, and 8) are designed to serve early adolescent learners who, because of their rapid physical, emotional and social growth, have special needs for exploring responsibility, involvement, commitment and identity. Their world view and their learning style are unique--they are not merely "junior" high school students.

O. Opportunity Schools. Opportunity schools serve the unique needs of certain students who, because of earlier learning disabilities, involvement with drugs, or other special social patterns, are not experiencing success in standard public school programs. Founded on a commitment to the unique worth of the student, opportunity schools offer students help in improving their self-concept and their ability to function and survive in a "straight" society.

P. Avant Garde Learning Technologies. Courses, programs and curriculums may include autohypnosis biofeedback, transcendental meditation, sensitivity training, yoga, drugs and curriculums of the extreme right and left. Curriculum and methodology reflect emerging trends in consciousness such as the human potential movement.

Q. Voucher System. A voucher system creates an educational marketplace where schools become economically accountable to the public. Parents may send their child to any one of a variety of schools which will be funded in proportion to enrollment. Skill-specific vouchers (i.e., reading, math, etc.) may also be awarded to educational corporations.

R. Year-Round School. In both plant maintenance and teacher and learner psychology, year-round school is a move from a relatively ineffective surge-fatigue-recuperate cycle to an ongoing, paced equilibrium. In addition to accommodating continuous progress learning and increasing scheduling flexibility, a year-round calendar maximizes use of facilities, resources and teaching and administrative personnel.

Fourth Level Key - Facility Design and Planning Implications

0. Programmed Instructional Materials. Sequenced learning experiences are provided in which there is high correspondence among the parts and through which indicative processes are carefully regularized and frequently based on reinforcement techniques such as exact repetition and adapted repetition. Programming involves books and other printed and visual materials, learning machines and simulation.

1. Educational Planning/Land Use. Educational planners must begin to take an active role in making land use decisions. Particularly in urban and metropolitan areas, schools must be an expression of the total community. Land use decisions should not be made in isolation from education and educational facility needs.

2. Demographic Planning Base. If schools are to meet both present and future needs, educational facility planning must be preceded by broad and comprehensive demographic studies.

3. Year-Round School Design. Year-round usage capability should be designed into new schools to allow a shift away from the traditional calendar, if and when it is desired.

4. Off-Campus Skills Center. Miniaturized introductory "skills centers" (in and out of the schoolhouse) utilize performance based, individually paced electronic and/or simplified learning packages.

5. Stimulating Physical Environment. There must be an increased use of color, form, texture and various creative art forms and architectural "surprises" to achieve humane (i.e., friendly, warm, inviting, tension reducing) spaces.

6. Changeable Furnishings. A further reduction in built-in furniture and equipment with a correspondent increase in throw-away or changeable learning aids can maximize daily, annual and long-range facility use flexibility.

7. Avant Garde Learning Spaces. Unconventional and informal spaces conducive to use of avant garde learning technologies can be designed into otherwise conventional educational facilities.

8. Educational TV. Though educational television faces charges of encouraging passivity and non-interactive learning, it is a fact of modern life that, from a very young age, children become accustomed to absorbing information, values and attitudes from their foster parent, the TV set. Careful utilization of this medium allows presentation of a wide variety of curriculum at a very nominal cost. FCC rulings calling for public TV with "two-way" capability by 1980, as well as advances in cybernetic technology, will rapidly increase the degree of interactivity available to the learner.

9. Local Knowledge Information Centers. Local knowledge information centers, electronically linked with centralized knowledge centers, store, retrieve and package individual requests for specific facts and information. This "modern living room of the scholar" will replace the traditional library or "book guardian" room.

10. Year-to-Year Flexibility. School facilities should be designed in such a way that their use may vary with changing future demands. Some new schools, for example, use relocatables for 25% of their classrooms so that, as an area matures and fewer children live in it, the buildings may be moved to avoid having empty classrooms.

11. Interagency Facility Usage. Linkage and cooperation between various public agencies should be established to insure maximum and broad usage of facilities.

12. Blurring School and World Boundaries. There should be a deliberately designed blurring of where the schoolhouse ends and the "real world" begins.

13. Educational Shopping Mall. "Shopping mall" design adapts from our new, creative and exciting shopping centers. Students, parents and other clients may stroll through psychologically exciting and rewarding spaces while opting for a wide variety of learning activities. These "park mall" schools will be open, exciting, colorful, warm, tension reducing, decentralized, friendly, changeable, and simple, and will feature a wide variety of places, spaces and individual options.

14. Participatory School Construction. Unfinished or easily changeable schools must be designed in which students, parents and teachers may participate in completing, conserving and changing their environment.

15. Off-Campus Educational Spaces. There must be greater use and creation of "educational" or "found" spaces located out of the schoolhouse and within the home, the community, and the world of work.

16. Communication Encouraging Spaces. Unconventional and informal spaces must be designed primarily as an aid to meaningful two-way communication between students, teachers, parents and others of differing values, goals, race, age, sex and economic status.

17. School as Ecological Model. Ecology and environmental models must be designed so that the school can lead and demonstrate to the total community the why and how of man living in balance and harmony with his total environment.

18. Mapping/Testing Centers. Manned by specialists, the centers are spaces where a student's progress is evaluated and curriculum is devised through the process of mutual examination of the learner's strengths and weaknesses.

19. Public Access Research Labs. Specialized research and development labs should be designed where individual students and their parents can together pursue an individual research or development project.

20. School-Based Leisure Facilities. Schools must be designed to include facilities for use during periods of leisure.

21. Zones of Learning. Areas of free flowing and easily changeable "zones of learning" must replace traditional classrooms and permanent walls.

22. Staff Renewal Centers. Staff planning, research and renewal centers must be designed to help all staff members whose teaching/communication skills may have become partially obsolete. (This would include teaching, counseling, technical and administrative personnel.)

23. Strategic Placement of Schools. Strategic placement of schools must maximize not only short-term fiscal parameters, but facilitate integration and guard against obsolescence and disuse as a district matures.

24. Open Space Schools. Physical facilities must be designed for carrying on learning activities requiring a broad range of group sizes, instructional settings, media, equipment and materials.

25. Lecture Spaces/Auditoriums. Traditional and conventional classroom-lecture spaces must be designed for individuals (students and teachers) who desire, or psychologically need, regular classroom-lecture activities.

26. Moveable Attendance Boundaries. Computerized geographical and demographic data must facilitate periodic redesigning of attendance boundaries to maximize integration, minimize transportation expenditures and guard against early obsolescence of facilities.

27. Informal Career Counseling Spaces. Informal spaces should be linked with career education planning and counseling centers.

28. People Involvement in Planning. Planning committees, made up of a broad cross-section of the community, should take a more active role in planning new educational facilities.

29. Changeable and Disposable Spaces. Leased spaces, demountable buildings, trailers, and modified open spaces such as factories, office buildings and lease-partnerships with public housing, business and industry.

30. Educational Parks. A clustering on one site of large groups of students of wide age differences and varying socio-economic-ethnic and academic achievement background. Internal decentralization may be achieved by designing "schools within a school."

31. Magnet Schools. Schools designed to voluntarily increase economic and racial integration and to develop, evaluate and diffuse innovative curricula. These high quality, high cost experimental schools serve the attendance area of a number of existing schools.

32. Cultural-Educational Clusters. The cultural-educational cluster links large groups of students of wide age differences and varying socio-economic-ethnic-racial and religious background on one or more interrelated sites. It is a "molecular structure" reaching toward and utilizing all of the cultural-educational-recreational-social-economic resources of the area. Student groups are decentralized within the total site with shared use of specialized staffs, programs, support services, and facilities. The cultural-educational cluster provides educational-cultural-recreational and social services to public, private, and parochial students and coordinates these programs with other public service institutions (parks, libraries, museums, housing, higher education, social services, highways, etc.).

PART III - A CONCLUSION AND SUMMARY

Perhaps the singlemost pervasive trend running through the previous illustrative material, is that of people involvement in the decision-making process. While some of the "external" data available to planners must be read by trained educational planners, demographers and statisticians, the majority of societal trends are values-oriented and, therefore, best identified and interpreted by those directly affected by the resultant changes. In many ways, the process of decision making in education is beginning to resemble that in early rural America. People are again struggling to take hold of their own destinies. Once again, they strongly desire to impact the learning content and process that will enable them to shape their own lives.

In summary, the years ahead represent an exciting challenge and opportunity for educational planners. Future rapid changes in society, along with uncertainty about specific direction and scope of these abrupt socio-economic-political-legal-technological changes is the single certainty about our future. Education and "schooling" needs to effectively serve this rapidly changing world. Education should more accurately reflect the goals, values and aspiration of our user-clients.

Recent demographic-population changes give clear evidence that we are ending our period of rapid population expansion. The current challenge is not to build for rapid expansion but rather to plan, design and construct educational facilities which are congruent with those emerging curriculum changes outlined in previous sections of this report.

It is time to design and implement new educational plans and resultant educational facilities. Planners should utilize future school buildings as the "triggering devices" for comprehensive and coordinated recycling and revitalization of our cities and their interdependent metropolitan areas. "New cities" and the revitalization of existing decaying urban centers are being designed and redesigned throughout the United States. We must now provide new communities within our old congested and decaying urban areas. These new cities will require new educational programs and with them new educational spaces and places. An imaginative urban planner of the 1800's said it well:

> Make no little plans. They have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remember that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency. Remember that our sons and grandsons are going to do things that would stagger us. Let your word be order and your beacon beauty...
>
> Daniel Burnham

--MAKE NO LITTLE (EDUCATIONAL) PLANS--

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